CLAIMS

What we claim is:

1. A method for utilizing a self-similarity technique to process an image comprising:

obtaining a corrupted image;

altering the corrupted image to obtain an altered image;

determining a plurality of parameters of a parametric mapping operator for mapping the altered image into the corrupted image; and

utilizing the plurality of parameters to map the corrupted image into an output image.

2. The method of claim 1 wherein the process comprises a de-echoing process and the act of altering the corrupted image further comprises:

creating echoes of the corrupted image.

3. The method of claim 1 wherein the process comprises a de-blurring process and the act of altering the corrupted image further comprises:

creating a blur of the corrupted image.

4. The method of claim 2 wherein the act of creating echoes of the corrupted image further comprises:

convolving the corrupted image with a plurality of pulses wherein each of the pulses are separated by a number of pixels.

5. The method of claim 4 wherein the number of pixels comprises only one pixel.

6. The method of claim 4 wherein the act of utilizing the plurality of parameters comprises:

adding to each of the number of pixels a multiplication of a strength factor by a combination of values associated with a plurality of neighboring pixels.

7. The method of claim 6 wherein the strength factor is a fixed scalar.

8. The method of claim 6 wherein the strength factor depends on parameters used by an image acquisition device when obtaining the corrupted image wherein the parameters used by the image acquisition device comprise at least one of an out of focus distance, an acquisition resolution or an optical system characteristic.

9. The method of claim 6 wherein the act of determining a plurality of parameters of a parametric mapping operator comprises:

calculating at least one similarity value for each of the neighboring pixels; and

utilizing the at least one similarity value to produce at least one of the plurality of parameters.

10. The method of claim 4 wherein the number of pixels is obtained by at least one of an image acquisition device or an image acquisition device manufacturer.

11. The method of claim 4 wherein the number of pixels depends on parameters used by an image acquisition device when obtaining the corrupted image wherein the parameters used by the image acquisition device comprise at least one of an out of focus distance, an acquisition resolution or an optical system characteristic.

12. A system for utilizing a self-similarity technique to process an image comprising:

means for obtaining a corrupted image;

means for altering the corrupted image to obtain an altered image;

means for determining a plurality of parameters of a parametric mapping operator for mapping the altered image into the corrupted image; and

means for utilizing the plurality of parameters to map the corrupted image into an output image.

13. The system of claim 12 wherein the process comprises a de-echoing process and the means for altering the corrupted image further comprises:

means for creating echoes of the corrupted image.

14. The system of claim 13 wherein the means for creating echoes of the corrupted image further comprises:

means for convolving the corrupted image with a plurality of pulses wherein each of the pulses are separated by a number of pixels.

15. The system of claim 14 wherein the means for utilizing the plurality of parameters comprises:

means for adding to each of the number of pixels a multiplication of a strength factor by a combination of values associated with a plurality of neighboring pixels.

16. The system of claim 15 wherein the means for determining a plurality of parameters of a parametric mapping operator comprises:

means for calculating at least one similarity value for each of the neighboring pixels; and

means for utilizing the at least one similarity value to produce at least one of the plurality of parameters.

17. A scanning apparatus comprising:

a processor;

an operating system coupled to the processor; and

a scanning module coupled to the operating system wherein the scanning module comprises logic for instructing the processor to perform the steps of:

obtaining a corrupted image;

altering the corrupted image to obtain an altered image;

determining a plurality of parameters of a parametric mapping operator for mapping the altered image into the corrupted image; and

utilizing the plurality of parameters to map the corrupted image into an output image.

18. The apparatus of claim 17 wherein the process comprises a de-echoing process and the logic for altering the corrupted image further comprises logic for:

creating echoes of the corrupted image.

19. The apparatus of claim 18 wherein the logic for creating echoes of the corrupted image further comprises logic for:

convolving the corrupted image with a plurality of pulses wherein each of the pulses are separated by a number of pixels.

20. The apparatus of claim 19 wherein the logic for utilizing the plurality of parameters comprises logic for:

adding to each of the number of pixels a multiplication of a strength factor by a combination of values associated with a plurality of neighboring pixels.

21. A computer program product for utilizing a self-similarity technique to process an image, the computer program product comprising a computer usable medium having computer readable program means for causing a computer to perform the steps of:

obtaining a corrupted image;

altering the corrupted image to obtain an altered image;

determining a plurality of parameters of a parametric mapping operator for mapping the altered image into the corrupted image; and

utilizing the plurality of parameters to map the corrupted image into an output image.

22. The computer program product of claim 21 wherein the process comprises a de-echoing process and the step of altering the corrupted image further comprises:

creating echoes of the corrupted image.

23. The computer program product of claim 22 wherein the step of creating echoes of the corrupted image further comprises:

convolving the corrupted image with a plurality of pulses wherein each of the pulses are separated by a number of pixels.

24. The computer program product of claim 23 wherein the step of utilizing the plurality of parameters comprises:

adding to each of the number of pixels a multiplication of a strength factor by a combination of values associated with a plurality of neighboring pixels.